UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/747,804	12/22/2000	Jennifer L. Hillman	PF-0576-1 DIV	5165

7590 06/04/2002

INCYTE GENOMICS, INC.
PATENT DEPARTMENT
3160 Porter Drive
Palo Alto, CA 94304

EXAMINER
HUTSON, RICHARD G

ART UNIT	PAPER NUMBER
1652	7

DATE MAILED: 06/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/747,804	HILLMAN ET AL.	
	Examiner	Art Unit	
	Richard G Hutson	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 April 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *3-12 and 15-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1 and 13* is/are rejected.

7)☐ Claim(s) *2 and 14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 December 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Applicants preliminary amendment of canceling claims 21-34, Paper No. 3, 12/22/2000, is acknowledged. Claims 1-20 are still at issue and are present for examination.

Election/Restrictions

Applicant's election with traverse of Group I, Claims 1, 2, 13 and 14 in Paper No. 6 is acknowledged. The traversal is on the ground(s) that examination of Group III, drawn to antibodies could be examined at the same time as the invention encompassed by the claims of group I, as a search of the prior art to determine the novelty of the polypeptides would also provide information regarding the novelty of the antibodies which specifically bind to the polypeptides. Applicants argument is not found persuasive because while the searches for the each of the groups overlap, they are not coextensive. For example, search of Group III would require search of subclass 530/387.1. A search of each of these subclasses would be unnecessary the search of the elected group I.

Applicant's further traverse on the ground(s) that claims to methods of use of the polypeptides (i.e. claims 15 and 16) should be examined together with the product claims from which they depend, per the Commissioner's Notice in the Official Gazette of March 26, 1996, entitled "Guidance on Treatment of Product and Process Claims in light of In re Ochiai, In re Browser and 35 U.S.C. 103(b)" which sets forth rules upon allowance of product claims, for rejoinder of process claims covering the same

scope of products. Applicants reference to rejoinder of the referred to process claims is noted and will be considered upon the allowability of the product claims.

Claims 3-12, 15-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention, the requirement having been traversed in Paper No. 3.

Priority

Acknowledgment is made of applicant's statement that this application is a divisional application of U.S. Application Serial Number: 09/131, 648, filed 8/10/1998. U.S. Application Serial Number: 09/131, 648 has issued as U.S. Patent Number: 6,168,920 and it is suggested that the specification be amended to reflect this.

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Applicants filing of information disclosure filed 3/8/2001, is acknowledged. Those references considered have been initialed. References 2-5, 7-10 of applicants 1449 were not present in the present application or in the parent application, 09/131,648, and

therefore were not considered. Further reference 11 appears to be the same as reference 13.

Claim Objections

Claims 2 and 14 are objected to because of the following informalities:

Claims 2 and 14 are dependent on rejected claim 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 (13 dependent on) is indefinite in that it is vague in the recitation of the phrase "biologically active fragment". A biologically active fragment may encompass a variety of different biological activities. These include but are not limited to immunological activity, such as acting as an antigen for an antibody; regulatory activity, such as that exhibited by many proteins which control transcription and/or translation of not only their encoding nucleic acids but other nucleic acids as well; or enzymatic activity. It is not clear what is encompassed by a "biologically active fragment" of a

polypeptide having the specified amino acid sequence and if it includes biological activities in addition to enzymatic activity, if any.

Claim 13 is indefinite in the recitation of "effective amount of a polypeptide" as the specification fails to teach what a "effective amount of the polypeptide" is.

Claim 13 is indefinite in the recitation of "an acceptable excipient" as the specification fails to teach what a "an acceptable excipient" is.

It is noted that the office interprets an immunologically active fragment of a polypeptide having an amino acid sequence of SEQ ID NO: 1 as a fragment of the polypeptide which elicits a specific immune response in an appropriate animal or cell and binds with antibodies specific for the native protein, based on applicants definition in the specification on page 9, lines 28-30.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and 13 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1 and 13 are directed to all possible polypeptides selected from the group consisting of: a) an amino acid sequence of SEQ ID NO: 1, b) a naturally-occurring amino acid sequence having at least 90% sequence identity to an amino acid sequence

of SEQ ID NO: 1, c) a biologically-active fragment of an amino acid sequence of SEQ ID NO: 1, and d) an immunogenic fragment of an amino acid sequence of SEQ ID NO: 1 (claim 1), and compositions comprising said polypeptides (claim 13). The specification, however, only provides the representative species of SEQ ID NO: 1, encompassed by these claims. There is no disclosure of any particular structure to function/activity relationship in the disclosed species. Specifically part b) of claim 1 is drawn to all possible polypeptides comprising a naturally occurring amino acid sequence at least 90% identical to an amino acid sequence of SEQ ID NO: 1, wherein said protein has an undefined function/activity. This encompasses allelic variants of SEQ ID NO: 1.

The specification defines an "allelic sequence" (see page 7) as an alternative form of the gene which may result in at least one mutation in the nucleic acid sequence. Alleles may result in altered mRNAs or polypeptides whose structure or function may or may not be altered. This definition does not provide any specific information about the structure of naturally occurring (alleles) variants of SEQ ID NO: 1 (i.e. where are the regions within which mutations are likely to occur) nor discloses any function for naturally occurring variants. There is no description of the mutational sites that exist in nature, and there is no description of how the structure of SEQ ID NO: 1 relates to the structure of any naturally occurring alleles. The general knowledge in the art concerning alleles dose not provide any indication of how one allele is representative of unknown alleles. The nature of alleles is such that they are variant structures, and in the present state of the art, the structure of one does not provide guidance to the structure of others.

The genus of proteins that are claimed is a large variable genus with potentiality of comprising many functionally unrelated proteins. The specification also fails to describe additional representative species of these polypeptides by any identifying characteristics or properties other than the structural characteristics recited in claim 1, for which no predictability of function is apparent. Given this lack of additional representative species as encompassed by the claims, applicants have failed to sufficiently describe the claimed invention, in such full, clear, concise, and exact terms that a skilled artisan would recognize applicants were in possession of the claimed invention. As noted above under 112 2nd paragraph rejection, with respect to an "immunologically-active fragment" of a polypeptide, the office interprets this recitation as a fragment of the polypeptide which retains the immunological activity of the polypeptide (e.g. those fragments that elicit antibodies against the native polypeptide).

Applicant is referred to the revised guidelines concerning compliance with the written description requirement of U.S.C. 112, first paragraph, published in the Official Gazette and also available at www.uspto.gov.

Claims 1 and 13 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for those polypeptides comprising an amino acid sequence at least 90% identical to an amino acid sequence of SEQ ID NO: 1 and fragments of SEQ ID NO: 3, wherein said polypeptide or fragment has extracellular adhesion activity, and polypeptides consisting of an immunologically-active fragment of a polypeptide having an amino acid sequence of SEQ ID NO: 1 (claim 1), and

compositions comprising said polypeptides (claim 13), does not reasonably provide enablement for those polypeptides comprising any naturally-occurring amino acid sequence at least 90% identical to an amino acid sequence of SEQ ID NO: 1 or any biologically-active fragments of SEQ ID NO: 1. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Factors to be considered in determining whether undue experimentation is required, are summarized in In re Wands (858 F.2d 731, 8 USPQ 2nd 1400 (Fed. Cir. 1988)) as follows: (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claim(s).

Claims 1 and 13 are so broad as to encompass any polypeptide selected from the group consisting of: a) an amino acid sequence of SEQ ID NO: 1, b) a naturally-occurring amino acid sequence having at least 90% sequence identity to an amino acid sequence of SEQ ID NO: 1, c) a biologically-active fragment of an amino acid sequence of SEQ ID NO: 1, and d) an immunogenic fragment of an amino acid sequence of SEQ ID NO: 1 (claim 1), and compositions comprising said polypeptides (claim 13).

The scope of the claims is not commensurate with the enablement provided by the disclosure with regard to the utility of the large number of polypeptides broadly encompassed by the claims, specifically part b) of claim 1 which is drawn to all possible

polypeptides comprising a naturally occurring amino acid sequence at least 90% identical to an amino acid sequence of SEQ ID NO: 1, and part c) of claim 1, wherein said polypeptide has an undefined function/activity. It would require undue experimentation of the skilled artisan to use the claimed polypeptides with an undefined function/activity. The specification is limited to teaching use of "partial polypeptides" or variant polypeptides of SEQ ID NO: 1 as extracellular adhesion proteins, but provides no guidance with regard to other uses. In view of the great breadth of the claim, amount of experimentation required to make the claimed polypeptides, the lack of guidance, working examples, and unpredictability of the art in predicting function from a polypeptide primary structure (e.g., see Ngo et al. in The Protein Folding Problem and Tertiary Structure Prediction, 1994, Merz et al. (ed.), Birkhauser, Boston, MA, pp. 433 and 492-495, Ref: U, Form-892), the claimed invention would require undue experimentation. As such, the specification fails to teach one of ordinary skill how to use the full scope of the polypeptides encompassed by this claim.

Thus, applicants have not provided sufficient guidance to enable one of ordinary skill in the art to use the claimed invention in a manner reasonably correlated with the scope of the claims broadly including all possible polypeptides comprising a naturally occurring amino acid sequence at least 90% identical to an amino acid sequence of SEQ ID NO: 3, and fragments of SEQ ID NO: 1, wherein said polypeptide has an undefined function/activity. The scope of the claims must bear a reasonable correlation with the scope of enablement (In re Fisher, 166 USPQ 19 24 (CCPA 1970)). Without sufficient guidance, determination of those polypeptides having the desired biological

characteristics is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See In re Wands 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Ni et al. (WO 98/31799, See IDS).

Ni et al. teach a 133 amino acid polypeptide galectin 11 (clone HJACE54, page 18 line 33-page 19, line 5). This polypeptide is 100 % identical to amino acid residues 204 to 336 of instantly disclosed SEQ ID NO: 1. Ni et al. further teach compositions of a therapeutically effective amount of said polypeptide and a pharmaceutically acceptable carrier or excipient (page 30). Thus claims 1 and 13 are anticipated.

Claims 1 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Su et al. (Proc. Natl. Acad. Sci. USA Vol 93, pp 7252-7257, July 1996, See IDS).

Su et al. teach the *in vitro* production of the 317 amino acid polypeptide PCTA-1. This polypeptide comprises many regions of local identity to amino acid residues 38 to 336 of instantly disclosed SEQ ID NO: 1. For example amino acids 63-70 of the protein

taught by Ni et al. are identical to amino acids 93-100 of instantly disclosed SEQ ID NO: 1. Su et al. teach an isolated polypeptide comprising a biologically active fragment and an immunogenic fragment of SEQ ID NO: 1. Su et al. further teach compositions of said polypeptide and an excipient (protein translation buffer). Thus claims 1 and 13 are anticipated.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard G Hutson whose telephone number is (703) 308-0066. The examiner can normally be reached on 7:30 am to 4:00 pm, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on (703) 308-3804. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3014 for regular communications and (703) 305-3014 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Richard Hutson, Ph.D.
Patent Examiner
Art Unit 1652
June 3, 2002